

REMARKS

Status of case

Claims 21 through 48 are pending. Applicant added new Claims 21-48. Applicant cancelled Claims 1-20 without waiver of the subject matter therein and reserves the right to represent the subject matter of Claims 1-20 in this or a later filed patent application.

Telephonic Interview

Applicant thanks Examiner Anner N. Holder for the courtesies extended to Applicant's attorney, Karl F. Horlander (Reg. No. 63,147), during a telephonic interview held June 29, 2009. In the telephonic interview, the parties discussed the claims in view of the references cited in the Non Final Office Action mailed May 12, 2009. No agreements were reached.

Claim Rejections under 35 U.S.C. § 112

Claims 14 and 16-20 are rejected under the first paragraph of 35 U.S.C. § 112. Applicant submits that the rejections are moot in view of the amendment.

Claim Rejections under 35 USC §103

Claims 1, 2, 6-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,272,177 (Murakami) modified by U.S. Patent No. 7,227,901 (Joch), and further modified by U.S. Patent 6,950,469 B2 (Karczewicz).

Claims 3, 5, 9, and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami modified by Joch, additionally modified by Karczewicz, and yet even further modified by U.S. Patent Application No. 2002/0146072 (Sun).

Claims 4 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami modified by Joch, further modified by Karczewicz, and again further modified by Shen et al., "Adaptive Motion Vector Resampling for Compressed Video Down Scaling," IEEE 1997.

Applicant cancelled Claims 1-20. Applicant requests consideration of the new Claims 21-48 in view of the remarks to follow.

To further prosecution of this application, Applicant submits that in the context of Claims 21-48, the definition of interpolation is a method of constructing new data points within the range of a discrete set of given data points, where the calculated data points correspond spatially and temporally to the given set of known data points. Accordingly, as defined by the Applicant, the interpolation pixels are new pixels values within the range of a discrete set of integer pixels, where the interpolation pixels correspond spatially and temporally to the integer pixels.

The application as filed provides examples of interpolation which support Applicant's definition. As one example, paragraph [0005] of the specification recites "by disposing interpolated pixels at the 1/2 pixel positions or 1/4 pixel positions between the integer pixels of the reference frame." See paragraph [0005] of the specification.

Claim 21

Applicant respectfully submits that new Claim 21 is patentably distinct over the asserted art described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

For example, Claim 21 recites "extracting, for an operable block within the blocks, motion complexity information of the operable block based upon the motion vector of the operable block and the motion vector of each of the blocks in the coding target frame that neighbor the operable block, wherein the complexity information of the operable block indicates a degree of complexity of

Response to Office Action Mailed May 12, 2009

movement between the operable block of the coding target frame and a corresponding block in a reference frame," which is patentably distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Claim 21 further recites "generating the predicted reference image for the operable block, wherein the predicted reference image for the operable block includes integer pixels located at integer pixel positions within the predicted reference image, interpolated pixels located at interpolated pixel positions within the predicted reference image, and the determined number of funny position pixels." which is also patentably distinct from the combined art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Claim 32

Applicant respectfully submits that new Claim 32 is patentably distinct over the asserted art described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

New Claim 32 recites "computer program code executable on a processor, the computer program code including instructions to execute a video encoding method," which is also patentably distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Claim 32 further recites "determining, for the operable block, a number of funny position pixels to include in the predicted reference image to be generated for the operable block based upon the motion complexity information of the operable block, wherein the number of funny position pixels included in the predicted reference image increases as the degree of complexity of movement of the operable block increases," which is patentable distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Claim 38

Applicant respectfully submits that new Claim 38 is patentably distinct over the asserted art described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

As a first example, Claim 38 recites "extracting, for an operable block within the blocks, motion complexity information of the operable block based upon the motion vector of the operable block and the motion vector for each of the blocks in the decoding target frame that surround the operable block, wherein the complexity information of the operable block indicates a degree of complexity of movement between the operable block of the decoding target frame and a corresponding block in a reference frame," which is patentable distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

As another example, Claim 38 recites "determining, for the operable block, a number of funny position pixels to include in the predicted image to be generated for the operable block based upon the motion complexity information of the operable block, wherein the number of funny position pixels included in the predicted image increases as the degree of complexity of movement of the operable block increases," which is patentable distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

As yet an addition example, Claim 38 recites "generating the predicted image for the operable ..., wherein the predicted image for the operable block includes integer pixels located at integer pixel positions within the predicted image, interpolated pixels located at interpolated pixel positions within the predicted image, and the determined number of funny position pixels."

Claim 48

Applicant respectfully submits that new Claim 48 is patentably distinct over the asserted art described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

For example, Claim 48 recites "determining a degree of complexity of movement for a target block of the plurality of blocks based upon at least one of an absolute value of differential motion vectors of blocks that surround the target block in the coding target frame, a summation of non-zero discrete cosine transform coefficients of predicted residual difference images of the blocks that surround the target block in the coding target frame, or a combination thereof," which is patentably distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Claim 48 further recites "in response to determination that the complexity of movement for the target block is below a threshold, calculating a first number of funny position pixels for a predicted reference image of the target block," and "in responds to determination that the complexity of movement for the target block is above a threshold, calculating a second number of funny position pixels for the predicted reference image of the target block, wherein the first number of funny position pixels is less than the second number of funny position pixels, which is patentably distinct from the art as described in Murakami, Joch, Karczezicz, Sun and Shen, either alone or in combination.

Conclusion

The application is believed to now be in condition for allowance, which Applicant earnestly requests.

Except for official actions of the Office, Applicant authorizes the Examiner to correspond with the below signed attorney by use of electronic mail.

Should the Examiner deem a telephone conference to be beneficial in expediting examination and/or allowance of this application, the Examiner is invited to call or electronically mail the undersigned attorney at the below listed telephone number or E-mail address.

Respectfully submitted,



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